



RR:0039

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Office of the Director

January 16, 1976

MEMORANDUM

TO: Allan Suematsu
Environmental Quality Commission

FROM: Doak C. Cox

RE: Crown-of-thorns Control as Exempt Action

The following members of the University have assisted in the review of the documents relating to DLNR's request for exemption from Chapter 343 requirements relative to the Crown-of-thorns Control: A. Reed, Zoology; C. Lamoureux, Botany; A. Kay, General Science; A. Banner, Hawaii Institute of Marine Biology; D. Cox and J. Miller, Environmental Center. We offer the following comments:

There is some question as to the need for the proposed control project. Results of extensive studies by the University in 1969-70 (Coral-Eating Sea Stars Acanthaster planci in Hawaii, J. M. Branham, S. A. Reed, Julie H. Bailey, and J. Caperon) as to the extent of coral damage by Acanthaster planci do not necessarily agree with the findings of Fish and Game (see attached report). These studies indicated that, although Montipora verrucosa was being selectively eaten and killed, this species comprised only a small percentage of the total coral cover (about 5%). Total damage to the coral reef was therefore less than 15%, not "substantial" as mentioned in the DLNR report. However, in the case of the Molokai area per se, there did not appear to be any obvious negative impacts on other marine life following the eradication efforts. Therefore, for the Molokai area treated previously, an environmental assessment, i.e. negative declaration or EIS may not be essential for this particular control action. An assessment should be made prior to any future eradication efforts.

In terms of the requested general exemption which would apply to crown-of-thorns starfish control throughout the state, in all island waters, an environmental assessment should be required. This assessment could be in the form of a negative declaration if the intent is to destroy A. planci in a single location with no repetition at some later date. Such an assessment should address the role of

A. planci in the reef system specific to Hawaii. However, if a "general eradication license" is wanted, applicable statewide, and over some period of time, then a formal EIS should be required. The basis for this recommendation includes but is not limited to the following potential environmental impacts:

1. A statewide eradication program could significantly reduce the total population of Acanthaster planci.

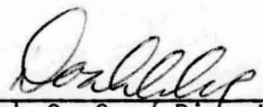
2. The effects of such a destruction of one species within the ecological system are not known. Acanthaster planci may be serving a yet unknown key role in maintaining an ecological balance within the coastal water community. For example, A. planci may act in inhibiting the expansion of Montipora which appears to be able to smother Porites which is the primary coral of the Hawaiian reef system.

3. The occasional large aggregation of A. planci may be a necessary part of their reproductive cycle or of secondary importance in attracting other species which in turn may be beneficial to the reef.

4. Furthermore there are a number of biologists who support the "natural causes theory" to explain the aggregation phenomenon of these seastars, (See: Branham, J. M. (1973) The Crown of Thorns on Coral Reefs. Bioscience. Vol. 23, No. 4, pp. 219-226. Vine, P. J. (1973) Crown of Thorns (Acanthaster planci) plagues: The natural causes theory. Atoll Research Bulletin. #166, pp. 1-10) that is these aggregations are a natural, recurring event on the reefs and not due to man's impact or upset of unknown ecological balances. These reports suggest that damage to living coral reefs has occurred largely unnoticed and unrecorded many times in the past with subsequent recovery. If so, perhaps expenditure of time effort, and State funds is unnecessary for "control" efforts.

5. Unfortunately, adequate information on many aspects of crown-of-thorns seastar reproduction, life history, and ecology are not available to serve as a basis for enlightened decision making as to whether the eradication activities are necessary. Funds might better be spent on periodic monitoring of the present aggregation.

It is our judgment that these potential environmental impacts and concerns should be addressed in an EIS and that no blanket exemption for statewide crown-of-thorns starfish control be granted.


Doak C. Cox, Director

cc: OEQC
C. Lamoureux
A. Kay
A. Banner
A. Reed